Synopsis

1998 Bainbridge Island Terminal Master Plan

Project Purpose

Provide a seamless intermodal transportation center serving projected travel demands for the next 30 years. Integrate and balance operational considerations, community impacts, geometric site constraints, multimodal transportation goals and environmental concerns.

Project Need

Holding Lanes — 210 vehicle capacity causing 1.5 mile queue on SR 305 at peak times. Inadequate facilities for HOVs, oversized vehicles, bicycles, pedestrians, passengers and priority loading. ADA requirements not met. Design-year regional level-of-service goal = 480 vehicles (2.2 vessels).

Local Access — Must maintain passenger vehicle and large truck access on public ways to condos and maintenance facility, with maintenance crew access to dock.

Marine Facilities — Third slip required for safety and reliability given Tyee shoal, adverse weather delays, maintenance closures and 35-minute scheduled headways. Also required for anticipated 3-vessel service.

Transit & Terminal Facilities — Safe and seamless interface at ferry terminal offers best opportunity to facilitate transit ridership. Regional goal = 1,600 passengers (40 buses) per peak sailing, with 60–90 second transfer time. Terminal requires waiting area for 1000, clear exit and entry pathways, pick-up and drop-off area, support facilities for operations.

Site Circulation — Existing intermodal conflicts between pedestrian, bicycles and vehicles will intensify with growth in ridership.

Pedestrians — Each peak sailing hundreds of people walk on undersized facilities between Winslow and the terminal and cross traffic unsafely through travel lanes, toll plaza and holding lanes.

Unloading Vehicles — Traffic signal timing at intersection creates queue that holds 40–50 vehicles on ramp, delay loading for return trip. Longer delay anticipated with future larger-capacity vessels. Exiting vehicle holding area with ramp metering will be required as traffic on Winslow Way increases.

Transit Vehicles — Providing transit with a competitive advantage over SOVs will require unimpeded direct access for buses between SR 305/ Winslow Way intersection and terminal.

Bicycles — Lack of bicycle lanes create conflicts with pedestrians and vehicles in holding areas, along Olympic Drive, though parking lots. 46% exit via left turn from Olympic Drive onto Winslow Way. Need controlled entry for accurate passenger counts and storage for 360 bicycles to accomodate anticipated growth to 250 bicyclists (175 on ferry, 75 parking).

Design Parameters

The following criteria were developed and used in the preliminary engineering of the facility elements.

1. Provide a total vehicle holding lane capacity of 330 as follows:
   a. Provide base capacity to accommodate one vessel load
   b. Provide two additional holding lanes beyond one vessel capacity to pre-sell for the following sailing
   c. Provide one additional lane for HOV
2. Provide minimum widths as follows:
   a. Pedestrian sidewalks = 1.83 meters
   b. Bicycle Lane = 1.52 (intersection) to 2.44 meters
   c. General Vehicle Holding Lane = 3.00 meters
   d. HOV Lane in Holding = 3.00 meters
   e. Vehicle Entrance and Exit Lanes = 3.66 meters
3. ADA accessibility
   a. 12: 1 slope
   b. 48: 1 cross slope
4. Design holding lane layout capable of loading and processing the design vehicle (AASHTO WB-114 double trailer truck) within a single 3.00 meter lane
5. Allow two lane loading and unloading (except for large vehicles)
6. Design facilities to accommodate “first come, first serve” loading policy
7. Provide ADA staging area near vessel
8. The following design criteria will apply to the project:
   a. AASHTO Standard Specifications for Highway Bridges (1989) HS-25 loading
   b. AISC Manual of Steel Construction – Load and Resistance Factor Design, 2nd Edition
   c. ACI 31 8-89 – Building Code Requirements for Reinforced Concrete
   d. Lateral Loading: Use greater values obtained from either AASHTO or the 1994 Uniform Building Code (UBC). Load Factors and combinations will be based on AASHTO
   e. WSDOT Design Manual
9. Locate new sewage facilities, drainage facilities, and the relocated sewage pump lift station 15.3 meters from the top of the slope at the shoreline.
10. The facility is required to comply with ADA Title II, ensuring all programs, services, and activities are accommodating to a wide range of disabilities, including mobility and hearing and visually impaired users.

Major Elements

Holding Lanes

Dedicated area for vehicles queuing to load onto the vessel, including the toll plaza

Local Access

Roadway network to accomodate the Eagle Harbor Maintenance Facility and Eagle Harbor Condominium traffic along Harborview Drive

Marine Facilities

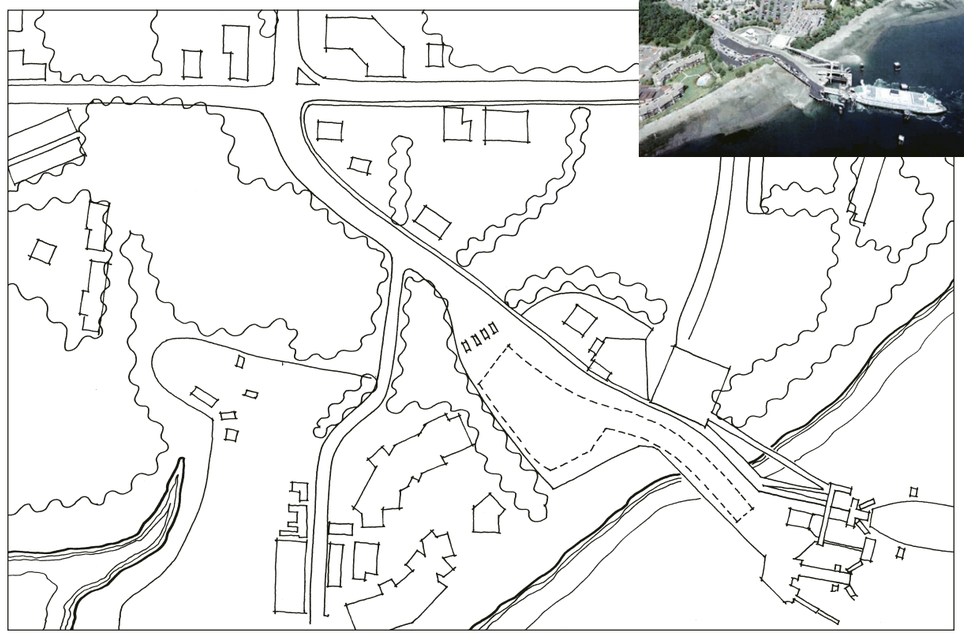
Loading area facilities between the dock and vessel

Transit & Terminal Facilities

Facilities to accommodate mode transfers for transit and vessel passengers

Site Circulation

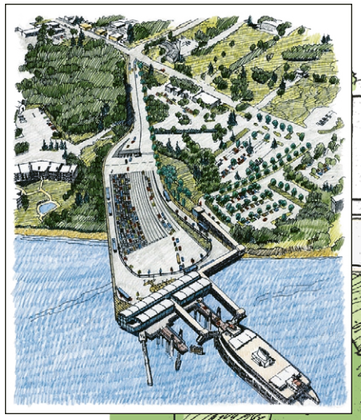
Roadway and path network for vehicles, transit, bicycles and pedestrians



Bainbridge Island Multimodal Ferry Terminal

1998 Preferred Master Plan

showing selected alternative for each major element



SR 305

Winslow Way

Olympic Drive

Four Exit Holding Lanes (2 lanes with traffic signal modification or grade-separated intersection proposed)

Toll Plaza

Bike Barn

Transit Only

Overhead Walkway (near-term)

Transit Only

Harborview Drive

Eagle Harbor Condominium

Eagle Harbor Maintenance Facility

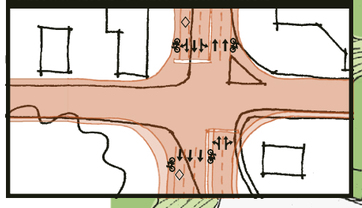
Pedestrian connection to existing trail (near-term)

Passenger pick-up & drop-off area (near-term)

Dock widening & timber dock replacement (near-term)

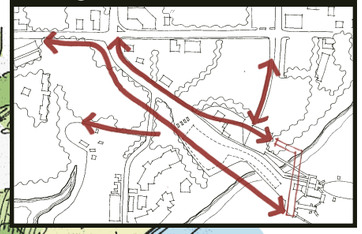
Intersection Impvts

5-lane Intersection — add bike lanes and 1 lane inbound



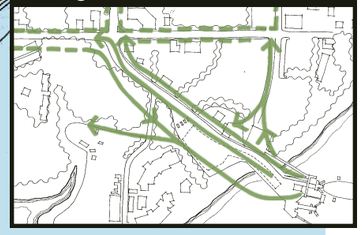
Pedestrian Access

Dedicated pathways on site linking to local streets and trails



Bicycle Access

Dedicated bicycle routes on site linking to local streets and trails

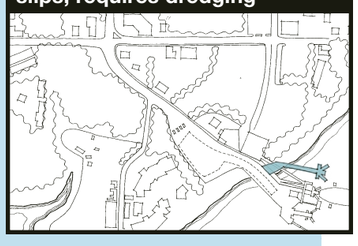


Local Access

Ingress parallel to Olympic, egress north of toll plaza

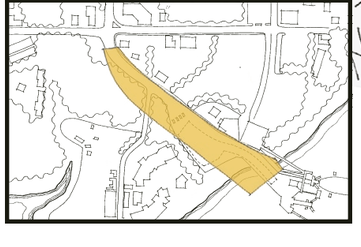
Marine Facilities

North and parallel to existing slips, requires dredging



Holding Lanes

Expand to southwest for 330 vehicle capacity in 14 lanes



Transit Facilities

Elevated deck adjacent to overhead walkway and terminal

Terminal Facilities

Adjacent to overhead walkway and elevated transit deck

Major Element

Holding Lanes

Alt. 1

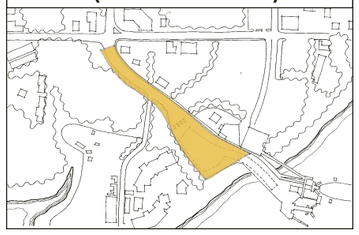
Expand to southwest for 330 vehicle capacity in 14 lanes

Alt. 2

Expand to northeast for 390 vehicle capacity in 15 lanes

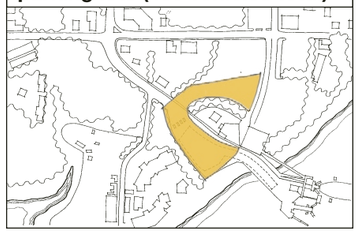
Alt. 3

Existing plus 270 more on SR 305 (480 vehicles total)



Alt. 4

Existing plus 270 more on east parking lots (480 vehicles total)



Goals & Objectives

Improve target level of service and overall efficiency of ticketing, holding, and loading operations. Provide exclusive areas for transit, HOV, bicycles and pedestrians to minimize delays, reduce conflicts and improve safety. Provide ADA-compliant facilities for mobility-challenged passengers.

Criteria — Summarized

Site Circulation

1. Provide access from the WSF maintenance yard to holding lanes.
2. Accommodate all design vehicles.
3. Maintain revenue control at toll booths.
4. Improve safety for all modes: control access and maintain separation.
5. Provide for circulation of largest design vehicle (WB-114) from any holding lane to any transfer span.
6. Provide ingress lanes required to the terminal:
   a. Priority bypass lane for transit and pre-paid fares.
   b. First come/first serve operation.
7. Separate parking access from ferry terminal operations.
8. Minimize uncontrolled pedestrian and bicycle crossings.
9. Provide pedestrian access from holding lane area to Winslow and:
   a. park and beach,
   b. passenger amenities within the holding area, and
   c. local area businesses.
10. Provide holding for 2.2 vessel loads (480 vehicles).

Operations

1. Minimize cost to manage traffic.
2. Provide dedicated ADA-access staging area near vessels.
3. Accommodate simultaneous two-lane loading and unloading of two ferries.
4. Minimizing distance from holding stop bar to vehicle transfer spans.
5. Load ferries in 8 minutes.
6. Provide sufficient toll booths (4) to process 220 vehicles in 20 minutes, plus one additional for operational efficiency.
7. Provide for passenger amenities in holding area.

Environment

Same as Local Access — see page 4.

Advantages of Preferred Alternative

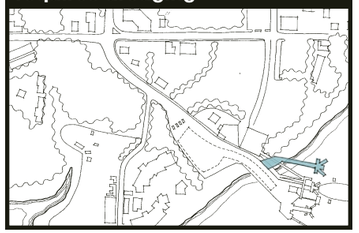
- meets capacity criteria and all service requirements
- minimizes vehicle holding and idling on SR 305
- does not impact the Winslow street network
- does not impinge on existing exit lanes
- does not require parking lot relocation
- does not increase airborn pollutants

Major Element

Marine Facilities

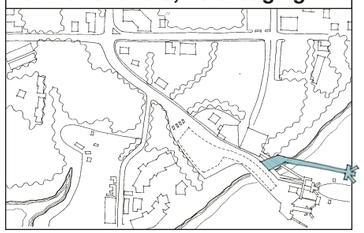
Alt. 1

North & parallel to existing slips, requires dredging



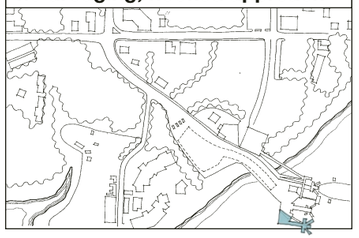
Alt. 2

North & parallel to existing slips, further offshore, no dredging



3

South & parallel to existing slips, no dredging, hooked approach



Goals & Objectives

Improve marine facilities to meet regional level-of-service goals of a two-vessel wait. Improve navigational safety to the ferry slips, especially during adverse weather conditions.

Criteria — Summarized

Operations:

1. Provide a sufficient number of slips for reliable operations.
2. Provide for two vessels in the terminal at a time.
3. Maintain operation of the tie-up slip.

Safety

1. Minimize congestion in the harbor.
2. Observe passing rules.
3. Recognize impacts due to adverse weather conditions.
4. Provide direct vessel access to slip.
5. Allow radar to be effective in all berthing configurations.
6. Provide sufficient turning space in harbor for approach to slips.
7. Provide most direct navigational route.
8. Provide equal access opportunities to all ships.
9. Provide widest allowable channel.

Environment

1. Provide treatment for runoff from new impervious surfaces.
2. Minimize turnidity and release of contaminants in Eagle Harbor during construction or operations.
3. Minimize impacts to juvenile salmon shoreline migration from overwater structures and shading.
4. Enhance or maintain the aesthetic value of views from the residential areas around the site.
5. Avoid or minimize holding vehicles on SR 305.
6. Reduce or minimize increases in noise levels at condominiums.
7. Minimize light and glare impacts on condominiums.

Advantages of Preferred Alternative

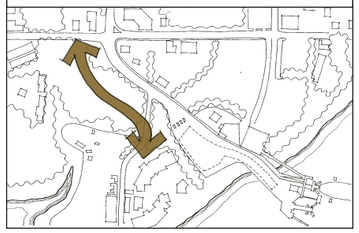
- Reduces headways with most direct route
- Meets safety criteria — poses fewest navigational hazards

Major Element

Local Access

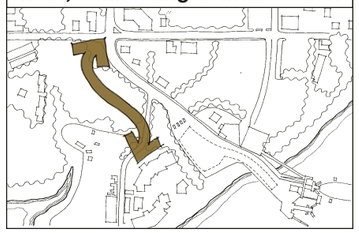
Alt. 1

2-way access road 100-feet west of intersection



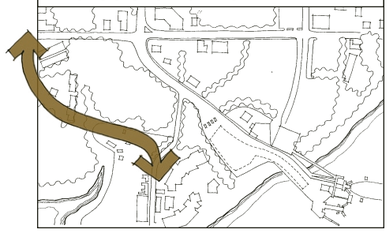
Alt. 1a

2-way access road 100-feet west, connecting to intersection



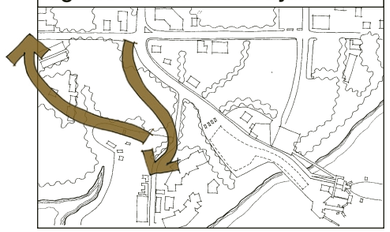
Alt. 2

2-way extension of Bjune Avenue over ravine



Alt. 3

Ingress parallel to Olympic, egress over ravine to Bjune



Goals & Objectives

Provide safe passenger vehicle and large truck access on public ways to Eagle harbor Condominium and Eagle Harbor Maintenance Facility during and after construction. Provide WSF maintenance crew direct access between the dock and the maintenance facility.

Criteria — Summarized

Site Circulation

1. Provide access from maintenance yard to the holding lanes.
2. Improve safety: maintain separation between modes travel.

Environment

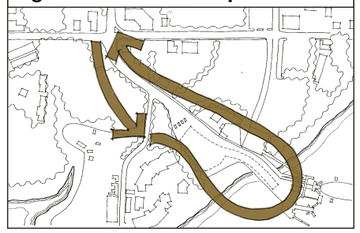
1. Provide storm water treatment for runoff from new impervious surfaces.
2. Minimize impacts to steep slopes along the shoreline and near the ravine.
3. Avoid or minimize impacts to wetland A or its 100-foot buffer in the ravine.
4. Avoid or minimize impacts to the unnamed stream n the ravine or its 50-foot buffer.
5. Minimize impacts to significant trees on steep slopes and in the ravine area.
6. Enhance or maintain the aesthetic value of views on site as well as from the condominiums and maintenance yard.
7. Avoid or minimize holding vehicles on SR 305.
8. Reduce or minimize increases in noise levels at condominiums.
9. Minimize light and glare impacts on condominiums.

Advantages of Preferred Alternative

- Requires minimal additional right-of-way and impervious surface
- Separates local access inbound traffic from all modes of travel except transit and bicycles
- Does not impact Winslow street network
- Modest construction cost
- Does not impact wetlands, significant trees or steep slopes
- Does not detract from existing park and pedestrian trail

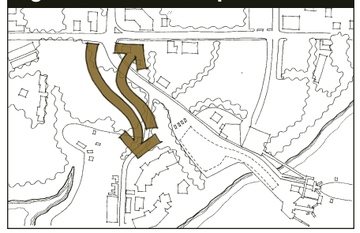
Alt. 4a

Ingress parallel to Olympic, egress via transit loop



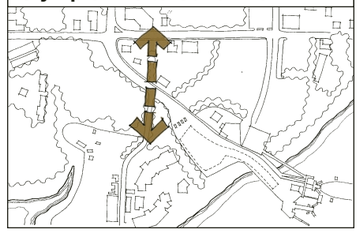
Alt. 4b

Ingress parallel to Olympic, egress north of toll plaza



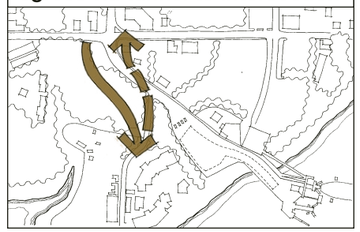
Alt. 4c

2-way road over or under Olympic Ave to Cave Ave



Alt. 4d

Ingress parallel to Olympic, egress via tunnel to intersection

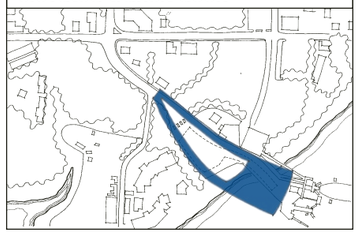


Major Element

Transit & Terminal Facilities

Alt. 1

Terminal Zone Concept Plan — elevated transit deck

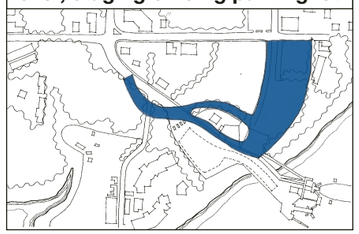


Alt. 2

Refined Elevated Deck — geometric requirements met

Alt. 3

Uplands North — ingess on fly-over, staging on extg parking lot



Alt. 4

Uplands West — ingess on fly-over, bays on extg lot & terminal

Transit Goals & Objectives

Facilitate transit accommodating the majority of increased ridership — consistent with state and regional goals — by reducing intermodal conflicts, improving safety and making best use of the site and space available. Plan for 20-year growth projections and accommodate longer-range upper-peak ridership projections in the SR 305 Corridor Draft MIS (11/96) and the Winslow Ferry Terminal Zone Master Plan (3/95).

Terminal Goals & Objectives

Provide a seamless point of entry and departure — a terminal building — for those traveling to and from Bainbridge Island and the SR 305 corridor. Locate the terminal building centrally to optimize both ferry and transit operations. Provide waiting areas and amenities, accommodate mobility-challenged passengers and facilitate all intermodal activities.

Criteria — Summarized

Site Circulation

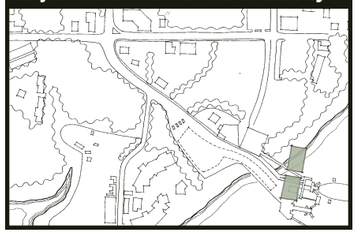
1. Provide improved transit ingress and egress lanes through the Winslow Way intersection.
2. Eliminate or reduce intermodal circulation conflicts.
3. Design vehicle site circulation using standard WSDOT and AASHTO design criteria.
4. Design facilities to accomodate transit staging and pulsing.
5. Accommodate upper-limit transit ridership projections.
   a. 1,200 passengers per peak sailing
   b. 25 buses (15 loading and up to 10 staging)
   c. Provide for potential growth to 40 buses
6. Accommodate regional goal of 1,600 passengers per peak sailing.
7. Minimize transit wait for passengers (3 minute maximum).

Operations

1. Separate transit facilities from the other modes of transportation.
2. Provide a clear and separate circulation paths for pedestrians.
3. Provide exclusive transit loading and unloading area.
4. Provide pedestrian connections to all facility sidewalks.
5. Minimize time for transit riders to transfer to and from vessels.
6. Minimize time for loading and unloading of passengers on transit.
7. Minimize distance from vessels to transit.
8. Provide facilities that comply with the ADA guidelines eliminating or reducing required assistance from WSF personnel.
9. Provide area for passenger ticketing and prepaid sales.
10. Provide circulation and waiting facilities in close proximity to ferry and transit facilities.
11. Provide for 8-minute passenger loading time onto vessels.

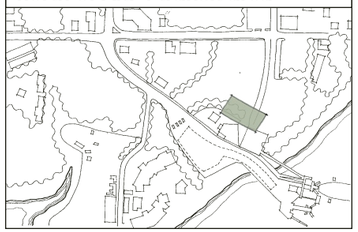
Alt. 1, 2, 3

Terminal building relocated adjacent to overhead walkway



Alt. 4

Terminal building relocated to north of Alt. 4 transit area



12. Provide a terminal building interface between the transit center and the ferry.
13. Provide 60–90 second walking time from bus to vessel.

Functions

1. Provide restrooms, passenger information, and other service amenities within the terminal building.
2. Include support facilities for operations staff, such as offices, storage, and associated space requirements.
3. Accommodate seated, standing, and disabled passengers.
4. Provide flexibility in the building design for future alternative ticketing and counting procedures.
5. Provide controlled-temperature environment within the terminal and transfer span concourses.

Environment

1. Provide treatment for runoff from new impervious surfaces.
2. Minimize turbidity and release of contaminants in Eagle Harbor during construction or operations.
3. Minimize impact to juvenile salmon shoreline migration from overwater structures and shading.
4. Minimize impacts to steep slopes along shoreline and near ravine.
5. Minimize impacts to significant trees on steep slopes and in the ravine area.
6. Enhance or maintain the aesthetic value of views on site as well as from the residential areas around the site.
7. Improve air quality by reducing the number of SOVs and increasing transit ridership.
   a. Decrease distance between transit and vessels.
   b. Provide easy passenger movement between vessels and transit.
8. Reduce or minimize increases in noise levels at condominiums.
9. Minimize light and glare impacts on condominiums.

Advantages of Preferred Alternative

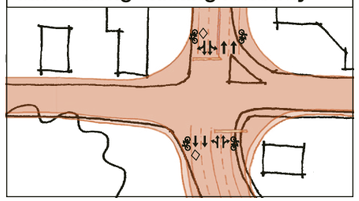
- Meets capacity criteria
- Separates transit from pedestrians and general traffic
- Provides shortest walking distance between transit and vessels
- Shading impacts minimized with over-water coverage 40 feet above MLLW
- Does not require relocating existing parking lots

Major Element

Site Circulation: Intersection Improvements + Pedestrian & Bicycle Access

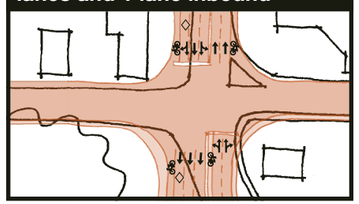
Alt. 1

4-lane Intersection — add bike lanes along existing roadway



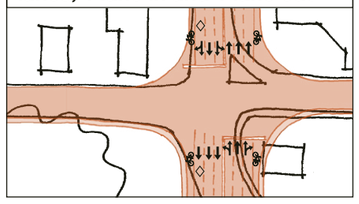
Alt. 2

5-lane Intersection — add bike lanes and 1 lane inbound



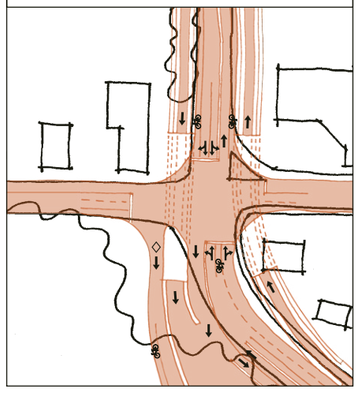
Alt. 3

6-lane Intersection — add bike lanes, 1 lane in and 1 lane out



Alt. 4

Grade-separated Intersection



Goals & Objectives

Minimize delays for exiting traffic with exclusive travel lanes and improved signal timing at the Sr 305/Winslow Way intersection. Reduce intermodal conflicts with dedicated facilities and provide multiple pedestrian and bicycle connections throughout the facility.

Criteria — Summarized

Site Circulation

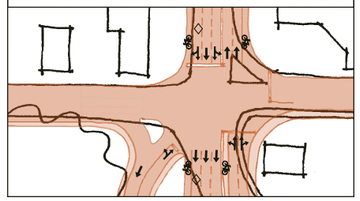
1. Accommodate all design vehicles.
2. Provide access routes for:
   a. Exiting vehicles
   b. Priority loading
   c. Trucks
   d. Emergency vehicles
   e. High occupancy vehicles
   f. Motorcycles
   g. Bicycles
   h. Pedestrians
   i. Mobility challenged passengers
3. Improve safety for all modes: control access and maintain separation.
4. Segregate parking lot access from general traffic.
5. Minimize pedestrians and bicycles crossing vehicle movements.
6. Provide direct pedestrian connection to Winslow.
7. Coordinate three bicycle egress routes from terminal.

Operations

1. Control passenger pick-up and drop-off area.
2. Maintain service for all existing circulation demands.
3. Minimize distance vehicle to vessel for walk-on passengers.
4. Provide the following facilities.
   a. Area for taxi queuing.
   b. Controlled bicycle counting operation.
   c. Controlled bicycle holding area near vessel.
   d. Storage for 360 bicycles.
   e. Exiting lanes with capacity to unload ferry in 6 minutes.
5. Provide ADA drop-off area near vessel.

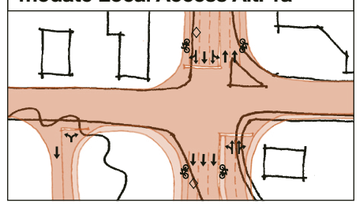
Alt. 5

Five-legged Intersection — to accommodate Local Access Alt. 1



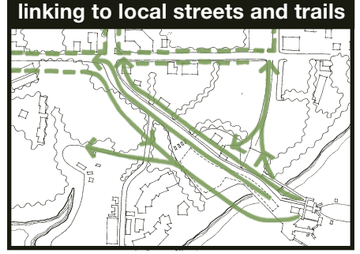
Alt. 6

Offset Intersection — to accommodate Local Access Alt. 1a



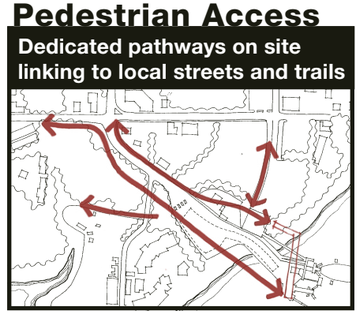
Bicycle Access

Dedicated bicycle routes on site linking to local streets and trails



Pedestrian Access

Dedicated pathways on site linking to local streets and trails



Environment

1. Provide stormwater treatment for runoff for an area of equivalent size to the proposed dock widening area.
2. Avoid or minimize impacts to wetland A and the related 100-foot buffer, southwest of Winslow Way intersection.
3. Minimize impacts to steep slopes along the shoreline and near the ravine.
4. Minimize impacts to significant trees on steep slopes and in the ravine area.
5. Enhance or maintain the aesthetic value of views on site as well as from the residential areas around the site.
6. Improve air quality by improving the level of service at the Winslow Way intersection.
7. Reduce or minimize increases in noise levels at condominiums.
8. Minimize light and glare impacts on condominiums.

Advantages of Preferred Alternative

- Provides exclusive bicycle lanes
- Provides exclusive high-occupancy vehicle lanes
- Separates pedestrians from general traffic
- Does not impact Wonslow street network
- Modest construction cost
- Adds modest amount of impervious surface
- Does not impact wetlands, significant trees or steep slopes
- Does not remove native vegetation north of Winslow Way
- Does not impact ravine